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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LESNIEWSKI, VICTOR D

ART UNIT PAPER NUMBER

2155

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/817,288	Applicant(s) SHINKAI ET AL.	
	Examiner Victor Lesniewski	Art Unit 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/15/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 11/15/2004 has been placed of record in the file.
2. Claims 14-17 and 23 have been amended.
3. The objection to claim 16 is withdrawn in view of the amendment.
4. The rejection under 35 U.S.C. 112 to claims 23-25 is withdrawn in view of the amendment.
5. The rejection under 35 U.S.C. 102(b) to claims 1-29 is withdrawn in view of the amendment's supplemental IDS.
6. Claims 1-29 are now pending.

Information Disclosure Statement

7. The IDS filed on 11/15/2004 has been considered.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 2, 3, 8, 9, 11-15, 23, 25, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Xu et al. (U.S. Patent Number 6,324,581), hereinafter referred to as Xu.
10. Xu has disclosed:

- <Claim 2>

A node, connected to another node through a network, having a file shared with a node, comprising: a token managing portion managing an access request for a shared file (figure 12, item 201); and an IO request intercepting portion asking said token managing portion to acquire an access permission for the shared file against an access request to the shared file in a node itself (figure 12, item 204 and column 2, lines 20-25, where figure 12 refers to the representative details of a data mover as shown in figures 1-4), wherein said token managing portion notifies said IO request intercepting portion of a node that has an update permission in response to the access request of said IO request intercepting portion (column 2, lines 27-31), and said IO request intercepting portion asks said node that has the update permission to access the shared file when said IO request intercepting portion is not capable of acquiring the access permission (column 2, lines 34-40 and figure 1, wherein "said node" is the second data mover).

- <Claim 3>

The node according to claim 2, further comprising: a system structure managing portion performing a restoration process of data of a shared file of the node itself when it is newly joined to a system (column 33, lines 12-22), wherein while said system structure managing portion is restoring the shared file, when an access request for the shared file takes place in the node itself, said IO request intercepting portion asks another node that shares the shared file to access the shared file (column 34, lines 47-53).

Art Unit: 2155

- <Claim 8>

A node, connected to another node through a network, having file shared with node, comprising: a token managing portion asking another node to acquire an access permission for a shared file against an access request for the shared file in the node itself (figure 12, item 201); and an IO request intercepting portion accepting an access request for a shared file in the node itself (figure 12, item 204 and column 2, lines 20-25), asking said token managing portion to acquire the access permission for the shared file against the access request (column 2, lines 27-31), and asking a node that has an update permission for the shared file to access the shared file according to the access request when said token managing portion is not capable of acquiring the access permission for the shared file (column 2, lines 34-40 and figure 1, wherein "a node" is the second data mover).

- <Claim 9>

A node, connected to another node through a network, having a file shared with a node, comprising: a permission request accepting portion accepting an access permission request of another node for a shared file (column 2, lines 34-37); and a token managing portion notifying first node that has issued the access permission request for a shared file of second node, when the second node has an update permission for the shared file (column 2, lines 27-31 and figure 12, item 212).

- <Claim 11>

A node, connected to another node through a network, having a file shared with a node, comprising: token managing means for managing an access request for a shared file

(figure 12, item 201); and IO request intercepting means for asking said token managing means to acquire an access permission for the shared file in response to an access request to the shared file in the node itself (figure 12, item 204 and column 2, lines 2-25 and 27-31), wherein said token managing means notifies said IO request intercepting means of a node that has an update permission in response to the access request of said IO request intercepting means, and said IO request intercepting means asks the node that has the update permission to access the shared file when said IO request intercepting means is not capable of acquiring the access permission (column 2, lines 34-40).

- <Claim 12>

A node, connected to another node through a network, having a file shared with the node, comprising: token managing means for asking another node to acquire an access permission for a shared file against an access request for the shared file in the node itself (figure 12, item 201); and IO request intercepting means for accepting an access request for a shared file in the node itself (figure 12, item 204 and column 2, lines 20-25), asking said token managing means to acquire the access permission for the shared file against the access request (column 2, lines 27-31), and asking a node that has an update permission for the shared file to access the shared file according to the access request when said token managing means is not capable of acquiring the access permission for the shared file (column 2, lines 34-40 and figure 1, wherein “a node” is the second data mover).

- <Claim 13>

A node, connected to another node through a network, having file shared with a node, comprising: permission request accepting means for accepting an access permission request of another node for shared file (column 2, lines 34-37); and token managing means for notifying first node that has issued the access permission request for a shared file of second node, when the second node has an update permission for the shared file (column 2, lines 27-31 and figure 12, item 212).

- <Claim 14>

A file replication control method for a system having a plurality of nodes connected to a network, each node sharing a file, comprising: causing an access requesting node to access a shared file of the access requesting node itself when the access requesting node has the latest data of a shared file (column 2, lines 31-34); and asking another node to access the shared file when the other node has the latest data (column 2, lines 34-40).

- <Claim 15>

The file replication control method according to claim 14, wherein an update permission for the shared file is given to only one node (column 1, line 64 through column 2, line 2), and when the access requesting node accesses the shared file and another node has the update permission, the access requesting node asks the other node that has the update permission to access the shared file (column 2, lines 20-25, 27-31, and 34-40 and figure 1, wherein “the other node” is the second data mover).

- <Claim 23>

The file replication control method according to claim 14, further comprising: restoring data of a shared file of a newly joined node (column 33, lines 12-22); and operating a user program before data of the shared file is completely restored (column 34, lines 47-53).

- <Claim 25>

The file replication control method according to claim 23, wherein the node asks another node that shares the shared file to perform a process for an access request for the shared file when the access request takes place in the node itself before data is completely restored (column 34, lines 47-53).

- <Claim 27>

A file replication method for a system having a plurality of nodes connected to a network, comprising: causing a first node to request a token for accessing a file (column 2, lines 20-25); notifying the first node of a second node that has the token when the first node is not capable of acquiring the token (column 2, lines 27-31); and causing the first node to ask the second node to access the file when the first node is notified that the first node is not capable of acquiring the token (column 2, lines 34-40).

- <Claim 28>

A computer-readable portable storage medium, when being used by a computer that composes a node connected to other node through a network, on which is recorded a program for causing the computer to execute a process, said process comprising: when the node accesses a shared file and a node itself has the latest data of the shared file,

causing the node itself to access the shared file of the node itself (column 2, lines 31-34); and when another node has the latest data, causing the node itself to ask the node to access the shared file (column 2, lines 34-40).

- <Claim 29>

A computer-readable storage medium for storing a program that causes a computer that composes a node connected to another node through a network to perform the steps of: when a node issues an access request for a file shared with other node, judging whether or not a specific node has update permission for the shared file (column 2, lines 20-25 and 27-31); and when the specific node has update permission, notifying the requesting node of the specific node that has the update permission (column 2, lines 34-40 and figure 12, item 212).

Since all the limitations of the invention as set forth in claims 2, 3, 8, 9, 11-15, 23, 25, and 27-29 were disclosed by Xu, claims 2, 3, 8, 9, 11-15, 23, 25, and 27-29 are rejected.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu.

13. Concerning claims 1 and 10, Xu did not explicitly state the use of a second node to notify the first node which node in the system has the update permission. Xu's system maintains a

Art Unit: 2155

mapping table at each node and therefore the first node need only check its own table to determine which node has the update permission. However, storing such tables used for mapping or addressing at various nodes throughout a system was well known in the art at the time of the applicant's invention and it would be a clear extension of Xu's system to store the mapping table at only a second node instead of at every node. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Xu by adding the ability to utilize a second node that comprises a second token managing portion notifying a node that requests an access permission for a shared file of a node that has an update permission for the shared file as a response message when another node has an update permission for the shared file. Claims 1 and 10 will be presented together since they disclose similar limitations.

14. Thereby, Xu discloses:

- <Claims 1 and 10>

A file replication system having a plurality of nodes connected to a network, shared files being distributed to the nodes, wherein a first node of the nodes comprises: a first token managing portion asking a second node of the nodes an access permission for a shared file when an access request takes place in first node (figure 12, item 201), and an IO request intercepting portion accepting an access to shared file, the access taking place the first node itself (figure 12, item 204 and column 2, lines 20-25), asking said first token managing portion to acquire the access permission against the access request (column 2, lines 27-31), and asking a node that has an update permission for the shared file to access to the shared file when said first token managing portion is not capable of acquiring the

Art Unit: 2155

access permission (column 2, lines 34-40 and figure 1, wherein “a node” is the second data mover), and a second node comprises a second token managing portion notifying a node that requests an access permission for a shared file of a node that has an update permission for the shared file as a response message when another node has an update permission for the shared file (figure 12, item 212 and obviousness whereby “a second node” is an alternative data mover that maintains a mapping table when “a first node” does not maintain a table).

Since Xu discloses all of the above limitations, claims 1 and 10 are rejected.

15. Claims 4-7, 16-22, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Tavares et al. (U.S. Patent Number 5,515,537), hereinafter referred to as Tavares.

16. Xu disclosed a file server system where data move computers control access to respective file systems in data storage. In an analogous art, Tavares disclosed a method of sharing data between processors on the same network by using a real-time distributed locking system. Both systems focus on data sharing and methods to allow users access to certain data.

17. Concerning claims 4, 16, 17, and other related dependents such as claims 21, 22, and 24, Xu did not explicitly state propagating updated content of the shared file to other nodes or the update's dependent relationship between nodes. However, Tavares does state a system wherein update data is propagated throughout the system. See figure 7. Furthermore, Tavares sends updated content and also passes a token from one node to the next in an ordered fashion based on the physical architecture of the system or on the processing of queues. It would have been

Art Unit: 2155

obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Xu by adding the ability to propagate updated content of the shared file to other nodes and utilize an update's dependent relationship between nodes as provided by Tavares. Here the combination satisfies the need for a solution to data consistency problems that may arise if concurrent client access to a read/write file is permitted. See Xu, column 1, lines 49-64. This rationale also applies to those dependent claims utilizing the same combination.

18. Thereby, the combination of Xu and Tavares discloses:

- <Claim 4>

The node according to claim 2, further comprising: a changed data notifying portion propagating an updated content of the shared file to other node along with information that represents a dependent relationship with another update (Tavares, column 6, lines 55-59); and a received data processing portion reflecting the updated content to the shared file while assuring an order of the update based on the dependency relationship (Tavares, column 8, lines 12-15).

- <Claim 5>

The node according to claim 4, further comprising: a system state information portion storing information about propagation mode of an updated content for each of at least one shared file, wherein said changed data notifying portion propagates the update content based on information queued in said system information portion (Xu, figure 12, item 202).

- <Claim 6>

The node according to claim 5, wherein the propagation mode is one of a synchronous mode in which it is assured that the updated content is propagated to all the nodes that share the shared file, a semi-synchronous mode in which it is assured that the updated content is propagated to the majority of nodes that share the shared file, and an asynchronous mode in which it is not acknowledged that the updated content is propagated to the nodes that share the shared file (Tavares, column 9, lines 60-66).

- <Claim 7>

The node according to claim 4, wherein said system state information storing portion keeps information about each node that shares at least one shared file for each shared file (Xu, figure 12, item 202).

- <Claim 16>

The file replication control method according to claim 15, wherein the other node that has the update permission releases the update permission after an update that has a dependent relationship with the update performed at the other node has been propagated to all the nodes (Tavares, column 7, lines 37-39).

- <Claim 17>

The file replication control method according to claim 15, wherein said method further comprises: the other node that has updated the shared file asynchronously propagating an updated content to the other nodes; and causing the other node that has updated the shared file to process an access request that takes place in the access requesting node while the updated content is being propagated (Tavares, column 10, lines 15-20).

- <Claim 18>

The file replication control method according to claim 17, wherein the updated content is reflected in such a manner that order thereof is assured (Tavares, column 7, lines 2-16).

- <Claim 19>

The file replication control method according to claim 18, wherein a dependency information that represents order of other updates to be propagated to the other node along with the updated content (Tavares, column 8, lines 12-15).

- <Claim 20>

The file replication control method according to claim 19, wherein a node that has received the updated content to reflect the updated content on a shared file of the node itself after receiving a previous updated content based on the dependency information (Tavares, column 10, lines 15-20).

- <Claim 21>

The file replication control method according to claim 14, wherein a propagation mode of an updated content is designated for each of at least one shared file (Tavares, column 9, lines 60-66).

- <Claim 22>

The file replication control method according to claim 14, wherein a node to which an updated content is propagated is designated for each of at least one shared file (Tavares, column 7, lines 2-16).

- <Claim 24>

The file replication control method according to claim 23, wherein restored data is transmitted in such a manner that order of update requests for the shared file is assured (Tavares, column 8, lines 12-15).

- <Claim 26>

The file replication control method according to claim 14, wherein a node that has performed a systematic stop in which nodes that share a file are synchronously stopped to store a systematic stop state and the node synchronously resumes a process for the shared file without restoring data of the shared file (Tavares, column 9, lines 60-66).

Since the combination of Xu and Tavares discloses all of the above limitations, claims 4-7, 16-22, 24, and 26 are rejected.

Response to Amendment

19. The applicant's submission of a supplemental IDS in order to support traversal of the previous rejection has necessitated reconsideration of the claims and substantial further search. Thus, the applicant's amendment with submission of IDS has prompted the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**.

Remarks

20. It is noted that the applicant's invention is directed toward a file replication system. In future responses, one possible way by which the applicant may further prosecution is to better delineate the replication of files in the independent claims. Currently, the independent claims,

though directed to a file replication system, seem to functionally only refer to implementations for file sharing and not replication. A better delineation of the file replication features of the invention may distinguish the claims over the current prior art of record.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

- Loucks et al. (U.S. Patent Number 5,634,122) disclosed a method for controlling access to shared resources in a distributed computer system by using a local authorization token manager.
- Bostian et al. (U.S. Patent Number 6,339,793) disclosed a method for modifying data in a system for read/write data sharing of direct access storage devices.

22. The applicant's amendment necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). The applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2155

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor Lesniewski whose telephone number is 571-272-3987.

The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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